



## **2017 Biennial IADI Research Conference Proceedings**

The International Association of Deposit Insurers (IADI) hosted its 4th Biennial Research Conference on 1-2 June 2017, at the Bank for International Settlements (BIS) in Basel, Switzerland. The Conference was attended by 188 participants representing a global audience from 67 jurisdictions. The Conference focused on the theme of “Designing an Optimal Deposit Insurance System – Theory and Practice”. Paper presenters covered the broad topics of estimating the optimal level of deposit insurance (DI) coverage, deposit stability in failing banks, the role of cross-border deposits in crises, financial innovation as a tool for extracting rents from bailouts, implications of interbank market monitoring for bank regulation, the liability structure of banks, and the effect of the design of DI on the structure of the financial system.

The Conference featured one invited paper and six others chosen from 32 submissions received in response to a Call for Papers. Each paper was presented by the author and discussed by two reviewers. The key points emerging from the discussions at various sessions of the Conference are summarised below.

### ***Opening Remarks***

Thomas Hoenig, President and Chair of the Executive Council of IADI, and Vice Chairman of the Federal Deposit Insurance Corporation (FDIC), USA, delivered the Opening Remarks and welcomed the participants. He emphasised the timeliness of the Conference and the topics covered, as optimal DI design requires us to confront issues of moral hazard, liquidity shocks and other challenges to maintaining financial stability. He stated that the Conference presents an opportunity to address important issues confronting policy makers in this area.

### ***Keynote Address***

The Keynote Address was delivered by Hyun Song Shin, Economic Adviser and Head of Research, Monetary and Economic Department, BIS, where he began by welcoming the delegates on behalf of the BIS leadership. He presented his research on the impact of dividends and management compensation on banks’ capital structure. Using the example of a well-known European bank, he pointed out that for every euro’s worth of asset increase, 99.9 cents of that increase is financed with debt. Equity grows at a constant amount, and the change in the balance sheet over the cycle is financed with debt. When considering bank capital, equity may be seen as the foundation of a building, total assets are the number of rooms in that building, and leverage (ratio of assets to equity) may be seen as the height of the building. The more leveraged a bank is, the higher the costs of borrowing, and the lower its lending.

This does not address why banks are so willing to pay in the form of dividends. He presented the total retained earnings and accumulated dividends of a group of 90 euro area banks, from 2007 until 2015 inclusive. If the distribution of dividends ceased in 2007, the retained earnings would have been around two-thirds larger. He showed that the distribution of dividends is effectively chipping away the lending base. He looked at the ‘stickiness’ of dividends, i.e., how much do dividends this year depend on how much the dividends were last year, and also how much does employee/manager compensation this year depend on how much the level of compensation was

last year. He found that the stickiness coefficient of dividends was very high, but it was very low for compensation.

While mentioning the relevance of IADI in this scenario, he emphasised that there are many stakeholders in the performance of banks. They are absolutely fundamental to the real economy, for lending growth, for real economic activity. We can think about what is the management maximisation solution and what is the shareholder maximisation solution. Those two things can be very different as to what is the value maximisation solution for the bank, which has to do with all stakeholders of the bank, including the debt holders. Then there is an even wider group of stakeholders, which is where IADI comes in, as it is this wider public interest that deposit insurers represent as a senior creditor to a failed bank.

In the question and answers (Q&A) portion of this session, a question was asked about the behaviour of management and relationship with the ownership structure at the bank, and whether it is better to have a widely held bank or a closely held bank from a stability point of view. One participant mentioned that central banks are the ones that drive too-big-to-fail and as taxpayers own the central banks, the question should be, which maximisation solution is best for the taxpayer? Another participant stated that one way to think about the dividend policy is the principal-agent problem, which is ultimately an information problem. If shareholders do not have information about what managers are doing, then there is a free cash flow problem, and the dividend policy being almost constant might serve more as a constraint. It almost starts to look more like a debt contract, even though these are equity holders.

### ***Session I: Optimal Deposit Insurance***

**Chair:** David G. Mayes, Professor, University of Auckland, New Zealand, and IADI Advisory Panel Member

**Paper:** Itay Goldstein, Professor, The Wharton School, The University of Pennsylvania, USA, and Eduardo Dávila, Stern School of Business, New York University, USA

**Discussant 1:** M. Suresh Sundaresan, Professor, Columbia University, USA

**Discussant 2:** Ugo Albertazzi, Senior Advisor, Bank of Italy

Itay Goldstein characterised the optimal level of DI coverage as the point after which bank runs are possible. In a wide variety of environments, the optimal level of coverage would depend on three sufficient statistics: the sensitivity of the likelihood of bank failure with respect to the level of coverage, the utility loss caused by bank failure (which is a function of the drop in depositors' consumption) and the direct social costs of intervention in the case of bank failure, which would directly depend on the unconditional probability of bank failure, the marginal cost of public funds, and the illiquidity/insolvency status of banks.

The paper goes on to stipulate that, because banks do not internalise the fiscal implications of their actions, changes in the behaviour of competitive banks induced by varying the level of coverage (often referred to as moral hazard) only affect the level of optimal DI coverage directly through a fiscal externality, but not independently. The authors characterise the wedges that determine optimal ex-ante regulation (which can be mapped to DI premia) and discuss the practical implications of their framework in the context of US data.

The first paper discussant, Suresh Sundaresan, described the determination of optimal DI as a "planner's problem", whereby the planner must optimise the welfare of the depositor by picking the appropriate coverage level given trade-offs. However, in this case the model is viewed as being too stylised with the caveat of policy prescriptions. In his view, DI coverage is basically just one policy tool, and the paper puts too much emphasis on this one tool. Other tools which could be involved include bank supervision, lender of last resort, equity, liquidity and the level of DI premia.

Ugo Albertazzi, the second discussant, also emphasised that the optimal DI model could benefit from the addition of a lender of last resort function as well as the presence of wholesale funding and regulation. Since almost 50% of bank liabilities in the EU are non-deposits and most of the deposits

are uninsured, this would have an impact on the model results. He noted that the explicit coverage provided by DI can be augmented by the expectations of depositors for additional implicit coverage.

During the Q&A period, a participant suggested that the model should incorporate the presence of explicit and implicit insurance. Another participant suggested that the model could incorporate the fact that deposits can actually increase in a failing bank scenario (the reverse of a run), in situations where knowledgeable depositors add to the insured deposit base under the assumption that in a failure they would be fully protected. Another participant recommended that the model take into account that the proportion of insured versus uninsured deposits could vary significantly depending on the size of banks. Other commentators suggested adding a component to the model that could be adjusted to take into account when the cost of running by depositors is reduced by the presence of e-banking.

## ***Session II: On Deposit Stability in Failing Banks***

**Chair:** Jean Roy, Professor, HEC Montréal, Canada, and IADI Advisory Panel Member

**Paper:** Christopher Martin, Manju Puri and Alexander Ufier, Federal Deposit Insurance Corporation, USA

**Discussant 1:** Larry D. Wall, Director, Federal Reserve Bank of Atlanta, USA, and IADI Advisory Panel Member

**Discussant 2:** Giuseppe Boccuzzi, General Director, Interbank Deposit Protection Fund, Italy

Manju Puri presented the findings of her paper (co-authored) on deposit stability in failing banks. The findings are based on data collected by the FDIC from a failed bank shortly after the bank was closed following the financial crisis. She observed that uninsured transaction accounts are more likely to liquidate than those of insured depositors, which increase in magnitude after the crisis to a greater extent than when the bank was close to insolvency. Checking accounts and older accounts are more stable. Uninsured term deposits are extremely risk-sensitive and less “sticky” than transaction accounts. The uninsured term deposits did not return in any appreciable quantity after the run-off, despite the increase in the DI limit.

The paper also observes that the market discipline role played by uninsured deposits was offset in the case of the sample bank by attracting institutional deposits just under the DI limit in the formal enforcement action period, which suggests that depositor discipline is limited. The bank was, therefore, able to offset the outflow in deposits through run-off of deposits by institutional players by offering a slightly higher interest rate than the market rate in order to attract cash. The paper also provides evidence that the liquidity coverage ratio is appropriately conservative, as it was never breached unambiguously. On the other hand, the net stable funding ratio was breached during the crisis. She concluded her presentation by emphasising that the findings in the paper have important implications for assessing the effectiveness of DI and other temporary measures that were applied during the crisis. The paper also has some inferences for the accuracy of assumptions behind the new liquidity regulations.

The first discussant for the paper, Larry Wall, contended that the paper is overly focused on deposits and does not study depositor behaviour in the context of different types of failed banks. Depositor behaviour can be different for a systemically important bank. There are also non-deposit factors like non-deposit sources of funds as substitute for deposits. On the authors’ findings regarding run-offs in term accounts versus transaction accounts, the discussant added that transaction depositors can run any time and have larger switching costs, so they can afford to wait. But, term deposits can only run at maturity and have low switching costs, so they are more likely to run. The discussant felt that the market did provide some discipline but it was suppressed as additional coverage was provided.

The second discussant, Giuseppe Boccuzzi, also asserted that depositor discipline is a difficult area. He felt that the paper could benefit by providing the definition of a liquidation event. Some caution is needed while interpreting the results of the paper. He provided evidence from the case of four resolved banks in Italy where it was found that market discipline for large banks is effective, and that DI mitigates run-offs, but not entirely.

During the Q&A portion, a question was raised about the impact of the offset of loans on losses and its effect on the results. The author responded by saying that they had reliable deposit data but not reliable loan data. With loan offsets, there will be even more drastic results. Questions were also raised about the motives of depositors, whether they are behavioural or sophistication, and whether more data can be provided to capture the behavioural side. The author stated that sophisticated behavior is observed when it comes to term deposits. On transaction accounts too, it appears that uninsured depositors are aware to a large extent of market conditions and demonstrate sophisticated behaviour.

### ***Session III: Deposit Insurance in Times of Crisis: Safe Haven or Regulatory Arbitrage?***

**Chair:** Edward J. Kane, Professor, Boston College, USA

**Paper:** Shusen Qi, Xiamen University, China; Stefanie Kleimeier, Maastricht University, The Netherlands; and Harald Sander, Technische Hochschule Köln, Germany

**Discussant 1:** Bent Vale, Special Adviser, Norges Bank, Norway, and IADI Advisory Panel Member

**Discussant 2:** Jean Roy, Professor, HEC Montréal, Canada, and IADI Advisory Panel Member

Shusen Qi examined the impact of DI schemes on bilateral cross-border deposits, by analysing the data of 22 “bank countries” and 131 “customer countries” between 1998 and 2011, in order to understand depositors’ behaviour toward DI in normal times and during a crisis. The results of the study suggest that both the existence of explicit DI and DI design features (e.g. coverage, power of DI schemes, moral hazard mitigation, etc.) have an impact on cross-border deposits. However, in times of crisis, DI acts primarily as a “safe haven” and stimulates “regulatory arbitrage” only to a limited extent. During the global financial crisis of 2008/2009, the emergency actions taken by governments of bank countries did not just maintain these DI safe havens, but also led to substantial relocations of cross-border deposits.

The paper has some key policy implications. One, DI schemes as well as emergency actions have sizeable effects on other countries in a financially interdependent world. Two, coordination is needed among national regulators with respect to DI schemes and emergency actions.

The first discussant for the paper, Bent Vale, stated that it is an interesting paper, showing how DI design features matter for cross-border deposits. It also tries to distinguish between “safe haven”, where depositors did not consider DI features of their home countries, and “regulatory arbitrage”, where depositors considered the relative differences of DI features between home and other countries. However, the distinction should not matter, because depositors should always consider DI in their own countries when deciding on cross-border deposits. Hence, the “regulatory arbitrage” model is the relevant one. He recommended that the paper drop the safe haven model and focus on the regulatory arbitrage model.

The second discussant, Jean Roy, acknowledged that the paper represents a considerable amount of work, including building an extensive data base and using sophisticated econometric analysis. However, some questions arise both with regard to the methodology and with regard to the implications of the results for policy. He asserted that the paper should explain the criteria to select a country as a “bank country” within the sample, as many major countries are not included. In terms of data, the paper may consider including market share of major bank countries, distribution of cross-border deposits across depositor countries, concentration, and other outliers that could affect the results. In terms of methodology, as DI variables do not seem correlated, it needs to be explained why there is no regression where they would all be included at the same time. There is also a question on the performance of the model out of the sample, i.e. is the model a predictive model. The paper may also study the effects of cross-border deposits on deposit insurers. Finally, the paper should explain what the hidden assumptions are to go from a descriptive study to a normative recommendation.

### ***Session IV: Financial Innovation for Rent Extraction***

**Chair:** Claudio Borio, Head of the Monetary and Economic Department, Bank for International

## Settlements

**Paper:** Anton Korinek, Johns Hopkins University, USA

**Discussant 1:** Carmelo Salleo, Head of the Macro-Financial Policies Division, European Central Bank

**Discussant 2:** Manju Puri, Director, Center for Financial Research, Federal Deposit Insurance Corporation, USA

In his paper, Anton Korinek shows how financial innovation greatly increases the scope for rent extraction from public safety nets, which could lead to a redistribution of wealth from the public to the financial sector. Financial innovations include repos, innovative types of mortgages, and credit default swaps. He develops a model in which it is optimal to have safety nets and shows that safety nets provide incentives to create new securities that crystallise risk-taking on states of nature in which bailouts will be obtained. The incentives for rent extraction are mediated through market prices and do not require the agents who engage in risk-taking to be aware that they are extracting rents from public safety nets. In aggregate, the described behaviour leads to large financial sector profits during good times, higher consumption volatility, greater economy-wide risk premium, and stark misallocations in real investment.

The author also observes that unprecedented losses led to unprecedented bailouts. Financial innovation massively increases rent extraction from government guarantees and understanding this concept can help us counteract it. The author makes the point that the existence of bailouts reduces the incentive for innovation, and bailouts induce innovation targeted for rent extraction.

The first discussant, Manju Puri, asserted her thought that the author's model made sense. She explained that the paper's hypothesis is that much of the financial innovation that occurred in the global financial crisis was created to take advantage of government bailouts. The model's premise is that bailouts are rising, which creates incentives to engage in risky behaviour. The discussant raises the question, "do the markets know that a bailout will occur?" If they do not, then they cannot take full advantage of the likelihood of bailout.

The second discussant, Carmelo Salleo, stated that the main conclusion of the paper is that rent extraction increases profits in good times and reduces risks for banks in the bad times. Banks have devised a way to take advantage of bailouts and safety nets. The discussant explained that in Europe, it is almost impossible to bailout banks. The discussant suggested that bailouts with nationalisation, personal sanctions for bankers, and progressive tax for profits could prevent the issues explained in the paper. More complete markets will also protect households from rent extraction. The discussant also suggested that the world needs better regulations with innovations.

During the Q&A period, one participant wanted to know how the paper focused on the dark side of innovation and questioned how the bright side of innovation (peer-to-peer market or non-banks creating a complete market) would affect the paper's points. Another participant asked how the conclusions would differ if banks issue substantial amounts of debt as total loss absorbing capacity (TLAC). If one securitises and resells, then this could off-set the rent extractions, create its own bailout, and counteract risk-taking. A question was also asked about why the bankers do not understand the system and why they are making profits when the criminal justice system can punish them for the wrongdoings.

## ***Session V: The Peer Monitoring Role of the Interbank Market in Kenya and Implications for Bank Regulation***

**Chair:** Andrew Campbell, Professor, University of Leeds, United Kingdom, and IADI Advisory Panel Member

**Paper:** Victor Murinde, University of Birmingham, United Kingdom; Ye Bai, University of Nottingham, United Kingdom; Isaya Manna, Kethi Ngoka-Kisinguh, and Samuel Tiriongo, Central Bank of Kenya, Kenya; and Christopher Green, Loughborough University, United Kingdom

**Discussant 1:** Dalvinder Singh, Professor, University of Warwick, United Kingdom, and IADI Advisory Panel Member

**Discussant 2:** John M. Chikura, Chief Executive Officer, Deposit Protection Corporation, Zimbabwe

Ye Bai explained that the co-authored research paper is motivated by the lessons learnt from the last global financial crisis. DI could weaken market discipline and lending in the 'interbank market' which provides a market peer monitoring mechanism. At the same time, the interbank market is unsecured and may be based on a network of lending relationships, leading to direct credit exposures and a potential domino (contagion) effect. Such failure may then affect banks not involved in the initial shock and is a notion that can be referred to as the 'dark side' of the interbank market.

The paper investigates whether the interbank market in Kenya is effective as a peer monitoring and market discipline device and, thus, complements official bank regulation. The paper finds a stable inverse relationship between interbank activity and bank risk levels, after controlling for other bank risk determinants and financial crises. The authors also find that if a bank continues to increase its interbank position past a certain level, the impact on bank risk is reversed from risk reducing to risk-increasing, due to possible contagion effects. By grouping banks by different characteristics, the authors' results suggest that for less risky banks, including larger, listed, foreign and older banks, the risk reduction effect due to peer monitoring is smaller. The author feels that the official regulators still have an important part to play, especially monitoring the contagion risk in the overly connected interbank market. The authors observed that this has implications for the East African regional block, and also for other countries at a relatively early stage of financial development.

The first discussant for this paper, Dalvinder Singh, mentioned that the main point he drew from the paper was the 'asymmetry of information' between banks and regulators. Peer monitoring could also be utilised by regulators and Central Banks to better understand the banking system. He described the market discipline role of self-regulation and private monitoring to reduce asymmetry of information. He suggested that peer monitoring fits well in the macro/micro prudential regulation paradigm.

The second discussant, John Chikura, also opined that banks participating in the interbank system conduct due diligence on one another and are expected to have specialist knowledge of the domestic economy, global trends, the safety and soundness of their peers, and hence, can undertake peer monitoring and play a role in market discipline. However, since the data used by the authors is unique, he felt that it would be difficult to replicate the study or validate the results. He added that the relationship between banks played an important role in the interbank market. He also observed that the results may not apply in other countries, where circumstances are different, or interbank borrowings are operated (or secured) differently than those in Kenya.

During the Q&A period, a question was raised about the composition and ownership status (state, family, privately owned, etc.) of the Kenyan banks. One participant asked about the difficulty of reaching the 'turning point' at which the impact on bank risk of interbank lending would be reversed from risk reducing to risk-increasing. Another participant suggested 'reverse causality', in that a bank taking less risk would lead to other banks wishing to work with that bank, resulting in the interbank share of assets increasing.

## ***Distinguished Guest Speaker***

The distinguished guest speaker, Stefan Ingves, Sveriges Riksbank, and Chairman of the Basel Committee on Banking Supervision (BCBS), stressed that DI systems are a key ingredient to financial stability. Governor Ingves referred to the theme of the Conference, saying that while an optimal DI framework may be difficult to achieve in reality, it is important to identify this endpoint and strive to get as close to it as possible. However, even if designed optimally, he believed that an effective Deposit Insurance System (DIS) should only be drawn upon rarely.

Governor Ingves outlined challenges faced by DISs such as the interaction between DI, resolution and public guarantees as well as cross-border issues. One of the relevant issues is the precise role that a DIS should play in a world with bail-in tools. Bail-in raises three questions in considering the design of an optimal DIS: (i) whether the development of resolution regimes would have consequences for the fee structure of a DIS; (ii) the actual role of the DIS in the resolution process. For example, the deposit insurers' claim can be converted into equity and then the deposit insurer becomes a new bank shareholder; and (iii) how the introduction of resolution regimes affects market discipline and moral hazard.

Another issue is the relationship between DI schemes and public guarantees, which raises several questions: are private DI systems as viable and credible as public systems; can the private scheme provide public confidence in the same way as the public scheme; how private DI systems interact with public resolution schemes in times of stress?

The Governor also stressed several issues relating to cross-border banking, which is placing considerable demands on the cooperation between the authorities of different countries. Even in normal times, however, it is not always easy to reach an agreement. The perspective of home and host countries can differ significantly when it comes to the treatment of "foreign" depositors. From a host country perspective, the question is whether the home country government will back the DI guarantee. It is entirely reasonable to expect that the capacity of some governments to provide for the guarantee may be questioned, rightly or not. He added that when it comes to possible liquidity support and the Deposit Guarantee System, currency mismatches may also be an issue. Such a mismatch could be challenging in some crisis scenarios (in particular, if swap markets were to be dysfunctional at the time).

In conclusion, Governor Ingves noted that the post-crisis reforms developed by the BCBS – ranging from higher levels of capitals, international liquidity standards, macroprudential measures to more robust risk capture – play an important role when considering the optimal design and functioning of a DIS. Indeed, on balance, more weight should be placed on ensuring that the ex-ante prudential regulatory framework is sufficiently robust in its design and calibration, so as to limit the likelihood of having to rely on a DIS. He reminded those present that financial stability is a joint responsibility. The financial system safety net as a whole – not just its individual components – must be sound and resilient.

## ***Session VI: Bank Liability Structure***

**Chair:** Neil Esho, Deputy Secretary General, Basel Committee on Banking Supervision, Bank for International Settlements

**Paper:** M. Suresh Sundaresan, Columbia University, USA; and Zhenyu Wang, Indiana University, USA

**Discussant 1:** Stijn Claessens, Head of Financial Stability Policy, Monetary and Economic Department, Bank for International Settlements

**Discussant 2:** Leonardo Gambacorta, Research Adviser, Monetary and Economic Department, Bank for International Settlements

Suresh Sundaresan presented a dynamic continuous-time model of optimal bank liability structure that incorporates the liquidity services on deposits, DI, regulatory closure, and endogenous default in banks' financing decisions. Nesting the classic model for non-financial firms as a special case, the model clearly explains why banks use higher leverage than non-financial firms. The model shows

that a value-maximising bank balances between deposits and debt so that its endogenous default coincides with the regulatory closure in order to maximize the tax benefits of debt and minimise the protection for deposits. Banks' optimal responses to regulatory changes often counteract regulators' objectives.

The author went on to stipulate that the model sheds light on the regulatory treatment of long-term debt. If long-term debt is a claim ranked lower than the deposits, it is naturally viewed as a capital that protects the deposits. Reflecting this view, regulators treat certain long-term unsecured debt as Tier 2 regulatory capital. However, if a bank adjusts its liability structure, the long-term debt held by the bank does not offer more protection than the minimum capital requirement. He argued that when tax rates fall, a bank becomes less levered and relies more on deposits.

The first discussant, Stijn Claessens, stressed that the topic chosen by the authors was worthwhile for policy makers. He highlighted that the paper shows that maximising a bank's valuation overlaps with a Deposit Insurance Agency's (DIA) interests, as a DIA provides value for bank owners. He noted, however, that in the present model there is no interaction between changes in the liability and the asset side of the balance sheet. In the model, DIA acts in a microprudential manner and does not try to achieve socio-optimal, macroprudential, and financial stability goals. He concluded by underscoring the careful analysis carried out by the authors, adding that the results of the paper include and extend other theories, with capital adequacy requirements, taxes, liquidity benefits, etc.

The second discussant, Leonardo Gambacorta, noted that DI affects the total supply of bank debt, but not its composition. At the same time, DI influences the demand of deposits and subordinated debt by households and non-bank investors. He pointed out that in the model bank capital is costly, but in reality well-capitalised banks supply more loans (as they are perceived as "less risky" by depositors and investors and have easier/cheaper access to forms of funding such as bonds or uninsured deposits). He went on to verify the conclusions of the model on the effects of changes in the tax rate by the empirical analysis on Italian mutual banks, which proofed that the model matches the real world.

During the Q&A period, a participant suggested that the authors could consider their model not in the context of leverage, but in the context of non-deposit liabilities. Another participant added that shareholder maximisation leads to a result different from value maximization, so non-core liabilities may serve the margin of adjustment in the further development of the model. Another participant asked if resolution-related standards, such as TLAC, had been considered in the model and whether it would change the dynamics of the model or introduce restrictions to the flexibility of banks' liability adjustments. Another commentator suggested that the choice variable which should be developed in the model is how transparent the value of the assets is.

## ***Session VII: Deposit Insurance and the Coexistence of Commercial and Shadow Banks***

**Chair:** Jan Nolte, Senior Financial Sector Specialist, World Bank

**Paper:** Stephen F. LeRoy, University of California, USA; and Rish Singhania, University of Exeter, United Kingdom

**Discussant 1:** Pongsak Hoontrakul, Member of the International Advisory Board, York University, Canada, and IADI Advisory Panel Member

**Discussant 2:** Lamont Black, Assistant Professor, DePaul University, USA

Rish Singhania presented the co-authored paper where the authors focus on how government-funded DI may subsidise risk taking by commercial banks, at the expense of the taxpayer in a financial system that consists of both commercial and shadow banks. The runs on shadow banks, which did not directly benefit from government subsidised DI, were evident during the recent financial crisis. The asymmetry between shadow banks and commercial banks leads to policy questions that deserve further exploration. Using a general equilibrium setting, this paper examines how DI affects the structure of the financial system when a government insurer guarantees deposits of commercial banks, but not those of shadow banks. The empirical investigation is carried out under three financing regimes: lump-sum taxes, deposit-based premia, and risky-asset-based premia.

When the subsidy is “large,” commercial banks dominate the financial system and attract more deposits. In this context, risk shifting leads to overvaluation of risky assets or bubbles. When the subsidy is “not too large,” DI indirectly benefits shadow banks as shadow banks trade to their advantage. The paper finds that shadow banks coexist with commercial banks in a government subsidised DI regime. This finding presents two conclusions: the size of the DI subsidy is a key determinant of the structure of the financial system; and the design of the DI scheme has significant implications for the distribution of risk within the financial system.

The paper also discusses the impact of imposing capital requirements on commercial banks. Shadow banks benefit when capital requirements are imposed on commercial banks under all three financing regimes. As a result, the authors reach the conclusion that the revenue neutral DI scheme, i.e. a DI framework in which the aggregate subsidy to unsuccessful commercial banks is equal to the penalty for successful banks, eliminates asset price distortions.

The first discussant for the paper, Pongsak Hoontrakul, commented that although the focus of the paper is simple, its findings offer useful guidance for policy makers. The authors use a simple micro-based model in competitive general equilibrium to flesh out how the design of DI influences the structure of a financial system in a risk neutral economy. The paper explores the impact of capital requirements on asset price distortions. It concludes that the increase in capital requirement reduces the DI premium subsidy to commercial banks and price distortion. Taking a similar approach to the existing literature, the paper complements the claim that capital requirements restore efficiency and, hence, improve the market outcome. Further research is suggested in the areas of, full and partial deposit guarantee issues, lump-sum tax financed DI, from a risk neutral to a risk-averse world, and a game theory approach for an oligopolistic banking structure.

The second discussant, Lamont Black, mentioned that the paper makes academic work more relevant to policy makers as the model takes into consideration the implications for the entire financial system. The fundamental distinction between commercial banks and shadow banks is commercial banks’ ability to provide insured deposits, which shadow banks are unable to do. The insurability of deposits impacts agents’ decisions in relation to trade-offs between expected insurance benefit and insurance premium.

It is important to study the spillover effects of the DI scheme. This paper sheds light on “scary” implications of financial system dynamics. More risky factors could be included into the model to explore the darker side of this phenomenon. These risk factors may include external uninsured debt and underfunded insurance externality, an aggregate shock, and commercial/shadow bank shock. Making the risky asset mark-to-market would also make the model more robust. Suggested topics for further research in this area include adding liquidity risk in shadow banks and exploring the technology of Fintech.

### ***Regulators’ Roundtable: Practice Meets Theory – Perspectives on the Global Financial Safety Net***

**Moderator:** David Walker, Secretary General, International Association of Deposit Insurers

**Presenters:**

Thomas M. Hoenig, President and Chair of the Executive Council, International Association of Deposit Insurers

Katsunori Mikuniya, Governor, Deposit Insurance Corporation of Japan, Japan

Bumgook Gwak, Chairman and President, Korea Deposit Insurance Corporation, Korea

Marc Dobler, Senior Financial Sector Expert, International Monetary Fund

The purpose of the session was to find out from the regulators’ perspectives their views on the Research Conference paper topics and their relevance to the key challenges faced in providing DI and financial stability.

The first presenter, Thomas Hoenig, believed the Research Conference raised some important issues that have implications for DI and financial stability. He was particularly struck by the research results showing the importance of high levels of equity capital as the most important line of defence

against bank failures. A well-capitalised banking sector, combined with well-designed DI and resolution frameworks, is the best defense against any future financial crises in his view.

Katsunori Mikuniya provided a retrospective on the Asian financial crisis of the 1990s and financial crises in the US and Scandinavian countries in the 1980s and 1990s. Lessons learned included the need to provide increased coverage and guarantees on a temporary basis, as well as ensuring that deposit insurers are provided with a well-stocked intervention tool kit. He also stressed that while loose regulation and lax financing can cause bubbles, excessive regulation and overly restrained financial systems can hamper economic growth, as well as cause banking system problems. Therefore, we need to find the optimal mix of regulation and efficiency in the system.

Bumgook Gwak provided an overview of Korea's risk based premium system and commented on how the development process involved attempting to find an optimal mix between the premia level and risk posed by the banks. He also stressed that a key factor in building more optimal DI systems was making sure that the deposit insurer was included in a framework where there was effective information sharing and cooperation between the safety net authorities. He saw this area as one where further research would be helpful.

Marc Dobler discussed the takeaways for IMF policy advice and research from the conference. He commented on research findings showing that reducing taxes on banks could result in increased in equity and that this was an area which should be focused on more. DI fund adequacy, coverage levels and moral hazard were all highlighted as areas where there were still many questions and where additional research was needed. The importance of determining pre-conditions for introducing effective DI systems was also an area of interest for the IMF. In particular, the cost/benefit of graduated increases in coverage levels which could be linked to improvements in the legal environment and bank regulation needs to be examined.

## ***Concluding Remarks***

**Presenter:** Kumudini Hajra, Senior Policy and Research Adviser, International Association of Deposit Insurers

Kumudini Hajra presented the key messages from the research papers, which are useful takeaways for the deposit insurers and other financial safety net participants. The focus of the Research Conference was on new approaches to some of the issues of importance for DI. These approaches combine theory and technical concepts.

One of the papers that focused on optimal levels of coverage strikes a balance between the role of DI in maintaining depositor confidence and the affordability of DI. The interaction of premium levels with the optimal level of coverage also has implications for deposit insurers. The paper on the impact of DI on stability of deposits is also thought provoking and the finding of the paper can have important implications for policy makers. Another paper focused on cross-border deposits and provided an analytical justification for seeking relative harmonisation of DI systems before the outbreak of a crisis, which can be useful for deposit insurers in regions with predominant cross-border banking. One of the papers shows that the increase in capital requirements since the global financial crisis may well lead banks to reduce deposits in favour of debt. This is an important conclusion for deposit insurers and supervisors because measures that cause banks to shift to debt reduce banking services to depositors.

Other papers touched upon topics that are more broadly relevant for the financial regulators. For example, the analysis of the interbank market presented in one of the papers can complement the traditional oversight exercised by bank supervisors and work as complement to regulation. Another paper makes an important point that the regulatory environment does more than create incentives for bank behaviour; it also affects the performance of non-regulated financial entities.

She mentioned that the final results in some of the papers can vary depending on the behaviour of depositors and that would need to be taken into consideration. Also, the banking sector is not homogenous, as there are different types of banks with differing sizes and levels of complexity, leading to differing results between these banks.

Closing her presentation, she thanked the BIS, speakers at the Conference, IADI advisory panel members, the FDIC and IADI members, and others involved in the preparations for the Research Conference.

### ***2019 Conference***

IADI intends to hold its fifth Biennial Research Conference in 2019. IADI will invite researchers, DI and bank supervisory practitioners, and private sector financial professionals to attend the 2019 Conference. Information regarding the 2019 conference, including a call for Papers, will be posted on the IADI website and in other appropriate forums well in advance of the conference.

The papers and materials for the 2017 conference can be found [here](#).